



Clinical Evaluation of Arthrocentesis and Modified Anterior Repositioning Splint in Management of Symptomatic TMJ Internal Derangement

Mahmoud Mohammed Mahmoud Nasef¹, Mohammed Mahgob Al-Ashmawy^{*1}, Ahmed Omar Makhoul[†]

Codex : 11/2024/04

Aadj@azhar.edu.eg

KEYWORDS

*TMJ internal derangement,
disc displacement without
reduction, modified anterior
repositioning splint,
arthrocentesis, TMJ.*

ABSTRACT

Aim: This study aimed to assess arthrocentesis and a modified anterior repositioning splint (ARS) as a therapeutic protocol for management of symptomatic internal TMJ derangement, disc displacement without reduction (DDwoR). **Subjects and Methods:** Fifteen female patients (30 joints) had TMJ internal derangement (DDwoR) were randomly involved in this study. A diagnostic preoperative magnetic resonance imaging (MRI) was done for all patients to confirm the diagnosis. A modified ARS was constructed for each patient. All patients in this study underwent arthrocentesis and wearing a modified ARS. Patients were assessed post-operatively after 1 week, 1 month, 3 months, and 6 months for pain score by visual analog scale (VAS), maximum mouth opening (MMO), and lateral excursions (right and left). **Results:** Clinical parameters of this study showed that pain score means improved from (6.80 ± 1.26) preoperatively to (1.53 ± 1.06) at the 6th month postoperatively. Also, improvement in MMO means from (26.67 ± 5.47) mm preoperatively to (43.11 ± 2.08) mm at the 6th month postoperatively was clearly observed. In addition to the obvious improvement in means of the right-side lateral excursion as it was (7.00 ± 0.87) mm preoperatively then became (8.07 ± 0.56) mm at the 6th month postoperatively, also, the left-side lateral excursion means showed the same improvement from (6.53 ± 0.90) mm preoperatively to (8.30 ± 0.56) mm at the 6th month postoperatively. A statistically significant differences between all preoperative means and postoperative means in these clinical parameters were clearly observed in the study. **Conclusion:** Arthrocentesis and modified ARS can be considered an efficient method for reduction of clinical signs and symptoms of DDwoR of TMJ.

INTRODUCTION

Temporomandibular joint disorders (TMDs) are a group of diseases including muscle and temporomandibular joint disorders with a multifactorial etiology: trauma, anatomical factors (skeletal and occlusal factors), emotional stress, deep source of pain, parafunctions and adaptability of the patient.⁽¹⁾

1. Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Al-Azhar University, Assuit, Egypt

* Corresponding Author e-mail:
MohamedAlAshmawy.46@azhar.edu.eg

TMDs may cause pain, clicking, crepitus, irregular or deviating jaw function, and limitation of mandibular movements. From the clinical point of view, TMJ internal derangement has two expressions: painful clicking and chronic closed lock which is associated with osteoarthritis.⁽²⁾ Limitations in mandibular mobility, discomfort associated with mandibular function, and joint noises may all be indicative of TMJ problems (internal derangement).⁽³⁾

The most common temporomandibular joint (TMJ) disorder is articular disc displacement (DD), characterized by a misaligned disc-condyle structural relationship and a prevalence of 41% in TMD patients.⁽⁴⁾ Management is mostly focused on relieving functional pain and re-establishing normal range of mandibular function. Management includes non-invasive methods like occlusal splints, supportive physical therapy, rehabilitation involving muscular training, and even psychological support, all of which aim to relieve symptoms.⁽⁵⁾

Using irrigation of the upper joint area and adhesion lysis, temporomandibular joint arthrocentesis eliminates inflammatory mediators, reducing discomfort and improving jaw function. Several TMJ arthrocentesis (lavage) materials have previously been described to treat the symptoms of TMJ internal derangement. Lactated Ringer, regular saline, and ozonized water were among these constituents.^(6,7)

Several studies had proved the effectiveness of anterior repositioning splints (ARS) in the treatment of disc displacements. ARS is a removable, convenient, and simple device that maintains a patient's bite in a protruded edge-to-edge relation. ARS aid in directing condyle anteriorly in the glenoid fossa (i.e., protrusive position) temporarily during treatment to assist adaption of retro-discal tissues. Additionally, ARS can also reduce mechanical stresses in TMJ rising from instant physiologic improvement in disc-condyle relation, enabling regenerative remodeling of TMJ. improved condyle-disc relationship with ARS was thought to be achieved primarily by anteroinferior movement of the condyle.⁽⁸⁾

PATIENTS AND METHODS

The present study is a prospective clinical study on human adult patients. fifteen patients (30 joints) enrolled in this study had TMJ internal derangement (disc displacement without reduction). Disc displacement without reduction is confirmed by magnetic resonance imaging (MRI) preoperatively. All patients were selected from the outpatient oral and maxillofacial clinic in the dental medicine faculty of Al-Azhar University Assiut branch. This study continued for one year (from October 2021 to October 2022).

A consent form was made for each patient and the study was held in the oral and maxillofacial department, faculty of dental medicine, Al-Azhar University, Assiut branch.

The ethical review board for the faculty of dental medicine at Al-Azhar University gave its approval to the study. All patients signed the consent form before the work after receiving comprehensive explanations of the operations' nature and potential dangers.

Inclusion criteria:

Patients age should be above 18 years old. Patient with a history of bilateral disc displacement without reduction (DDwoR) of TMJ confirmed by MRI. Patients with limited mouth opening and pain related to TMJ. Patients did not respond to conservative treatment.

Exclusion criteria:

Patients with any systemic diseases such as (Rheumatoid arthritis). Patients with limited mouth opening are caused only by muscle spasms. History of neurologic disorders as (Trigeminal neuralgia). History of condyle fractures. Head and neck cancers. Fully edentulous patient. Developmental and congenital disorders as (hemifacial microsomia, and Goldenhar syndrome) of TMJ.



Operative procedures

Construction of Modified ARS:

Upper and lower alginate impressions were taken for each patient for cast preparation. Interocclusal wax bite registration with a protrusive interocclusal record (edge to edge) with modeling wax was performed. Upper and lower casts were mounted on a semi-adjustable articulator, and interocclusal wax bite and transferred to the articulator. Full coverage hard acrylic anterior repositioning splint, 5 mm thickness (calculated from molars) was fabricated on the maxillary teeth. Each splint had a ramp at the area of incisors for guiding lower teeth to close on the splint. The splint was finally seated in the patient's mouth to check seating, stability, and retention, occlusion was verified using articulating paper.

Application of Modified ARS:

The splint was worn for 6 months after arthrocentesis in the following protocol: 1st week, patients were instructed to wear the splint for only 2 hours on the first day, and wearing time increased gradually by 2 hours daily to reach 14 hours/day at the end of the 1st week. In 2nd week: the splint was worn constantly for 14 hours daily. In 3rd week, patients were instructed to increase the period of wearing the splint again gradually by more than 2 hours daily to reach 24 hours/day except for meal time, and the patient was instructed to wear the device till the end of the 6th month. In the 7th week, the ramp of the modified ARS was removed. After that during follow-up visits, the acrylic splint was ground by 1mm every 4 weeks for prevention of

malocclusion until thickness reached 3mm guided by articulating paper.

Arthrocentesis

The arthrocentesis in this study followed the guidelines of Nitzan et al, and the superior joint space was lavaged using a total of 100–200 ml ringer lactate solution for each joint. The patient's mouth was kept open throughout the operations using a biting block. To liberate the disc and release its fibrous tissue, the mandible was moved in the vertical, protrusive, and lateral orientations.⁽⁹⁾

Post-operative care:

On the day of surgery, patients were directed to use ice packs over the surgical site region to reduce the amount of postoperative edema. On the next day, hot fomentation at the surgery site was used to increase blood flow and reduce postoperative edema. NSAIDs, anti-edematous, and muscle relaxants were prescribed to all patients. The patients were instructed to follow a soft diet to reduce pressure on the joint and perform both active and passive mouth-opening exercises. Instruct the patient to wear the splint.

Postoperative evaluation

Clinical evaluation

The patients were assessed post-operatively after 1 week, 1 month, 3 months, and 6 months for pain was measured with VAS (10-cm line), MMO was measured between the incisal edges of the maxillary and mandibular central incisors, and lateral excursion was measured during the shift of lower jaw for right and left sides from the midline.



Fig. (1) A canthotragal line with the demarcation of target Points, b, Needles insertion, and c, Anterior repositioning splint intraorally.

Statistical analysis

For descriptive statistics, data were gathered, reviewed, and examined. MANOVA and repeated measures analysis of variance (ANOVA) were used to analyze the time of investigations (T0, T1, T2, T3). A 0.05-level independent samples t-test was used. The statistical package for social science (SPSS) was used to conduct data analysis (IBM-SPSS ver. 28.0 for Mac OS).

RESULTS

TMJ pain

The TMJ pain was measured preoperative, and 1 week, 1, 3, and 6 months postoperative recorded an average (\pm SD) of 6.80 ± 1.26 , 5.53 ± 1.25 , 3.87 ± 0.99 , 2.47 ± 0.92 , and 1.53 ± 1.06 ; respectively.

The TMJ pain was significantly ($p < 0.001$) decreased from (6.80 ± 1.26) preoperatively to (1.53 ± 1.06) at the 6th month postoperatively as revealed by repeated measure ANOVA.

The overall change from preoperative to the final postoperative reading (6th month) was a -77.45 % decrease from preoperative.

For further comparisons between timepoints, means followed by different letters are significantly different according to Duncan's Multiple Range Test (DMRTs) at 0.05 level. Accordingly, all postoperative timepoints were significantly different from the preoperative TMJ pain scale (Table 1).

MMO

Maximum mouth opening (MMO) was measured preoperative, and 1 week, 1, 3, and 6 months postoperative recorded an average (\pm SD) of 26.67 ± 5.47 , 36.53 ± 3.36 , 38.33 ± 3.09 , 40.97 ± 2.25 , and 43.11 ± 2.08 mm respectively.

MMO was significantly ($p < 0.001$) increased from (26.67 ± 5.47 mm) preoperatively to (43.11 ± 2.08 mm) at the 6th month postoperatively as revealed by repeated measure ANOVA.

The overall change in MMO from preoperative to the final postoperative reading (6th month) was a 61.65% increase from preoperative.

For further comparisons between timepoints, means followed by different letters are significantly different according to Duncan's Multiple Range Test (DMRTs) at 0.05 level. Accordingly, all postoperative time points were significantly different from preoperative MMO (Table 2).

Table (1) The TMJ pain measured preoperative, and 1 week, 1, 3, and 6 months postoperative recorded an average (\pm SD).

Timepoint	TMJ pain		
	Mean \pm SD	DMRTS	
Preoperative	6.8 ± 1.3	a	
Postoperative	1 week	5.5 ± 1.2	b
	1 month	3.9 ± 1.0	c
	3 months	2.5 ± 0.9	d
	6 months	1.5 ± 1.1	e
Repeated meas. ANOVA		<0.001***	

*, **, ***, significant at $p < 0.05$, < 0.01 , < 0.001 ; ns, nonsignificant at $p > 0.05$

Table (2) Maximum mouth opening presented as mean and standard deviation (SD).

Timepoint	MMO (mm)		
	Mean \pm SD	DMRTs	
Preoperative	26.7 ± 5.5	d	
Postoperative	1 week	36.5 ± 3.4	c
	1 month	38.3 ± 3.1	b
	3 months	41.0 ± 2.2	a
	6 months	43.1 ± 2.1	a
Repeated meas. ANOVA		<0.001***	

*, **, ***, significant at $p < 0.05$, < 0.01 , < 0.001 ; ns, nonsignificant at $p > 0.05$



The right-side lateral excursion

The right-side lateral excursion was measured preoperative, and 1 week, 1, 3, and 6 months postoperative recorded an average (\pm SD) of 7.00 ± 0.87 , 7.70 ± 0.90 , 7.73 ± 0.68 , 7.77 ± 0.70 , and 8.07 ± 0.56 ; respectively.

The lateral excursion Right side was significantly ($p<0.001$) increased from (7.00 ± 0.87) preoperatively to (8.07 ± 0.56) at the 6th month postoperatively as revealed by repeated measure ANOVA.

The overall change in lateral excursion right side from preoperative to the final postoperative reading (6th month) was a 15.24% increase from preoperative.

For further comparisons of lateral excursion right side between time points, means followed by different letters are significantly different according to DMRTs at 0.05 level. Accordingly, all postoperative timepoints were significantly different from preoperative.

Table (3) *The lateral excursion right side was measured preoperative, and 1 week, 1, 3, and 6 months postoperative recorded an average (\pm SD).*

Timepoint	The lateral excursion right side (mm)	
	Mean \pm SD	DMRTS
Preoperative	7.00 ± 0.9	b
Postoperative		
1 week	7.70 ± 0.9	a
1 month	7.73 ± 0.7	a
3 months	7.77 ± 0.7	a
6 months	8.07 ± 0.6	a
Repeated means. ANOVA	<0.001***	

*, **, ***, significant at $p<0.05$, <0.01 , <0.001 ; ns, nonsignificant at $p>0.05$

The left-side lateral excursion

The left-side lateral excursion was measured preoperative, and 1 week, 1, 3, and 6 months postoperative recorded an average (\pm SD) of 6.53 ± 0.90 , 6.83 ± 0.56 , 7.13 ± 0.64 , 7.50 ± 0.50 , and 8.30 ± 0.56 ; respectively.

The lateral excursion left side was significantly ($p<0.001$) increased from (6.53 ± 0.90) preoperatively to (8.30 ± 0.56) at the 6th month postoperatively as revealed by repeated measure ANOVA.

The overall change in lateral excursion left side from preoperative to the final postoperative reading (6th month) was a 27.04% increase from preoperative.

For further comparisons of lateral excursion left side between timepoints, means followed by different letters are significantly different according to DMRTs at 0.05 level. Accordingly, all postoperative timepoints were significantly different from preoperative.

Table (4) *The lateral excursion left side was measured preoperative, and 1 week, 1, 3, and 6 months postoperative recorded an average (\pm SD).*

Timepoint	Lateral excursion left side (mm)	
	Mean \pm SD	DMRTS
Preoperative	6.5 ± 0.9	d
Postoperative		
1 week	6.8 ± 0.6	c
1 month	7.1 ± 0.6	b
3 months	7.5 ± 0.5	a
6 months	8.3 ± 0.6	a
Repeated meas. ANOVA	<0.001***	

*, **, ***, significant at $p<0.05$, <0.01 , <0.001 ; ns, nonsignificant at $p>0.05$

DISCUSSION

Temporomandibular joint diseases are common disorders in the population, and they may strongly affect the quality of life, being male or female, and are important predictors of an individual's health. Compared to women of similar age, women outnumber men for stress-related bodily complaints such as TMD. Owing to the complex anatomical and functional structure of the temporomandibular joint and the progressive nature of internal derangement, management of its internal derangement has always been considered a challenge for clinicians.⁽¹⁰⁾

The present study included 30 joints of 15 female patients with a mean age of about 27y. The female sex predilection in our study may be due to the effect of estrogen on the human TMJ, also reported by **Yamada**⁽¹¹⁾. Also, **LeResche**⁽¹²⁾ said, according to research diagnostic criteria for temporomandibular disorders, estrogen receptor alpha (ERa) has also been demonstrated in the tissues of rats, primates, and human TMJs as well as in osteoblasts and the lining cells of the trabecular bone.

In the present study, arthrocentesis landmarks were demarcated as described by **McCain**⁽¹³⁾, where it is considered a standard, simple, and more reliable technique to approach upper joint space without complications.⁽¹⁴⁾ Two needles were used in this study instead of the cannula, which is more difficult to enter the narrow joint spaces, according to **Nitzan et al.**⁽⁹⁾

Arthrocentesis was done by using 100-200 ml of ringer lactate was sufficient to clear the joint space from blood, loose particles, inflammatory mediators, and pain mediators. In addition to lysis of any adhesions and release of the joint disc by hydraulic pressure, this is in agreement with **Nitzan et al**⁽⁹⁾, and **Zardeneta et al**⁽¹⁵⁾, who reported that infusions of 100 mL are sufficient for effective therapeutic washing.

In this study, an anterior repositioning appliance was used in the treatment of DDwoR in our patients, and this is in agreement with the conclusion of **Guo**⁽¹⁶⁾. In our study, the ARS was modified in thickness to become 5mm at the posterior teeth, and

this is supported by **Hegab** TMJ stabilizing splint, where, the clinical signs and symptoms of disc displacement without reduction were improved in his study.⁽¹⁷⁾

Patients in this study were instructed to wear a modified ARS splint for 6 weeks, At the 7th week, the ramp of modified ARS was removed. After that, during the follow-up visits, the acrylic splint was ground by 1mm every 4 weeks for prevention of malocclusion until thickness reached 3mm guided by articulating paper to convert the modified ARS to the standard stabilizing splint, which, was used to complete the follow-up period (6 months). The protocol of part-time modified ARS use and its change to stabilizing splint to overcome long-time use of ARS, as, it will have frequently been associated with many complications such as posterior open bite, occlusal alterations, and muscle contracture of the lateral pterygoid, all these in accordance with the results of many studies.^(16, 18-20)

Pain score in this study was measured by VAS. A significant ($p<0.001$) reduction in means was observed between (6.80 ± 1.26) preoperative and (1.53 ± 1.06) at the 6th month postoperative, as a change percent was -77.45 %. MMO means significantly ($p<0.001$) increased from (26.67 ± 5.47 mm) preoperative to (43.11 ± 2.08 mm) at the 6th month postoperative with a change percent of 61.65% increase from preoperative these results supported by other studies.^(21,22)

The right-side lateral excursion was significantly ($p<0.001$) increased from (7.00 ± 0.87) preoperatively to (8.07 ± 0.56) at the 6th month postoperatively. The overall change was a 15.24% increase from preoperative.

The left-side lateral excursion was significantly ($p<0.001$) increased from (6.53 ± 0.90) preoperative to (8.30 ± 0.56) at the 6th month postoperative. The overall change was a 27.04% increase from preoperative. All the previous clinical parameters showed significant improvement in the pain score, MMO, and lateral excursions, all these improvements reduced the symptoms and encouraged the patient to get a normal social life.



CONCLUSION

Arthrocentesis and modified ARS can be considered an efficient method for reduction of clinical signs and symptoms of DDwoR of TMJ.

REFERENCES

- Okeson J, Porto F, Furquim B, Feu D, Sato F, Cardinal L. An interview with Jeffrey Okeson. *Dental Press J Orthod*. 2018;23:30-9.
- Wadhwa S, Kapila S. TMJ disorders: future innovations in diagnostics and therapeutics. *J Dent Educ*. 2008;72: 930-47.
- Paegle D, Holmlund A, Hjerpe A. Expression of proteoglycan mRNA in patients with painful clicking and chronic closed lock of the temporomandibular joint. *Int J Oral Maxillofac Surg*. 2005;34:656-8.
- Manfredini D, Guarda L, Winocur E, Piccotti F, Ahlberg J, Lobbezoo F. Research diagnostic criteria for temporomandibular disorders: a systematic review of axis I epidemiologic findings. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2011;112:453-62.
- Marzook H, Abdel Razeq A, Yousef E, Attia A. Intra-articular injection of a mixture of hyaluronic acid and corticosteroid versus arthrocentesis in TMJ internal derangement. *J Stomatol Oral Maxillofac Surg*. 2020; 121:30-4.
- Hegab A, Ali H, Elmasry M, Khallaf M. Platelet-Rich Plasma Injection as an Effective Treatment for Temporomandibular Joint Osteoarthritis. *J Oral Maxillofac Surg*. 2015;73:1706-13.
- Liu F, Steinkeler A. Epidemiology, diagnosis, and treatment of temporomandibular disorders. *Dent Clin North Am*. 2013;57:465-79.
- El-Asfahani I, Kortam S. Effect of CAD/CAM versus conventional anterior repositioning splints on the management of temporomandibular joint disc displacement with reduction: A randomized controlled clinical trial. *Egy Dent J*. 2020;66:571-85.
- Nitzan D, Dolwick M, Martinez G. Temporomandibular joint arthrocentesis: a simplified treatment for severe, limited mouth opening. *J Oral Maxillofac Surg*. 1991;49:1163-7.
- Fernandez M, Fernandez J, Blanco A, Costas A, Lopez A, Arenaz J, et al. Comparison of intra-articular injection of plasma rich in growth factors versus hyaluronic acid following arthroscopy in the treatment of temporomandibular dysfunction: A randomised prospective study. *J Craniomaxillofac Surg*. 2017;45:449-54.
- Yamada K, Nozawa K, Kawano Y, Kohno S, Amizuka N, Iwanaga T, et al. Expression of estrogen receptor alpha (ER alpha) in the rat temporomandibular joint. *Anat Rec A Discov Mol Cell Evol Biol*. 2003;274:934-41.
- Dworkin S, LeResche L. Research diagnostic criteria for temporomandibular disorders: review, criteria, examinations and specifications, critique. *J Craniomandib Disord*. 1992; 6:301-55.
- McCain J, Hossameldin R. Advanced arthroscopy of the temporomandibular joint. *Atlas Oral Maxillofac Surg Clin North Am*. 2011;19:145-67.
- Neeli A, Umarani M, Kotrashetti S, Baliga S. Arthrocentesis for the treatment of internal derangement of the temporomandibular joint. *J Maxillofac Oral Surg*. 2010;9:350-4.
- Zardeneta G, Milam S, Schmitz J. Elution of proteins by continuous temporomandibular joint arthrocentesis. *J Oral Maxillofac Surg*. 1997;55:709-16.
- Guo Y, Cui S, Zhou Y, Wang X. An Overview of Anterior Repositioning Splint Therapy for Disc Displacement-related Temporomandibular Disorders. *Curr Med Sci*. 2021;41:626-34.
- Hegab A, Youssef A, Hameed H, Karam K. MRI-based determination of occlusal splint thickness for temporomandibular joint disk derangement: a randomized controlled clinical trial. *Oral Surg Oral Med Oral Pathol Oral Radiol*. 2018;125:74-87.
- Conti P, Correa A, Lauris J, Stuginski J. Management of painful temporomandibular joint clicking with different intraoral devices and counseling: a controlled study. *J Appl Oral Sci*. 2015;23:529-35.
- Heo H, Yoon H. Clinical outcomes of patients with bilateral anterior disc displacement without reduction and erosive change of the temporomandibular joint after performance of unilateral arthrocentesis and stabilization splint therapy. *J Oral Rehabil*. 2020;47:307-12.
- Akbulut N, Altan A, Akbulut S, Atakan C. Evaluation of the 3 mm Thickness Splint Therapy on Temporomandibular Joint Disorders (TMDs). *Pain Research and Management*. 2018;2018:620-27.
- Lei J, Yap AU, Li Y, Liu MQ, Fu KY. Clinical protocol for managing acute disc displacement without reduction: a magnetic resonance imaging evaluation. *Int J Oral Maxillofac Surg*. 2020;49:361-368
- Heo HA, Yoon HJ. Clinical outcomes of patients with bilateral anterior disc displacement without reduction and erosive change of the temporomandibular joint after performance of unilateral arthrocentesis and stabilisation splint therapy. *J Oral Rehabil*. 2020;47:307-312.



التقييم الاكلينيكي للبزل المفصلي وجبيرة التموضع الأمامي المعدلة في علاج اعراض الاضطرابات الداخلية لمفصل الفك الصدغي.

محمود محمد محمود ناصف, محمد محجوب العشماوي, احمد عمر مخلوف

1. قسم جراحة الفم والوجه والفكين. كلية طب الأسنان. جامعة الأزهرين. أسيوط. مصر.

* البريد الإلكتروني: MOHAMEDALASHMAWY.46@AZHAR.EDU.EG

الملخص :

الهدف: هدفت هذه الدراسة لتقييم البزل المفصلي وجبيرة التموضع الأمامي المعدلة كبروتوكول علاجي لعلاج اعراض اضطرابات المفصل الفكي الصدغي (الانزلاق الغضروفي الغير مرجح).

المواد والاساليب: خمسة عشر مريضة لديهم اضطرابات لمفصل الفك الصدغي انزلاق غير مرجح قد شملوا عشوائيا في هذه الدراسة. تم عمل أشعة الرنين المغناطيسي التشخيصية لجميع المرضى للتأكد من التشخيص. تم عمل جبيرة التموضع الأمامي المعدلة لكل المرضى. لقد خضع جميع المرضى في هذه الدراسة لعملية البزل المفصلي مع لبس جبيرة التموضع الأمامي المعدلة. قد تم متابعة المرضى بعد اجراء العملية بعد الاسبوع الأول والشهر الأول والشهر الثالث ونهاية الشهر السادس من أجل قياس الألم باستخدام المقياس التناظري البصري وقياس الحد الأقصى لفتحة الفم والانحراف الجانبي الأيمن والأيسر للفك السفلي.

النتائج: لقد أوضحت المقاييس الإكلينيكية لهذه الدراسة أن متوسطات مقياس الألم قد تحسنت من (1.26 ± 6.80) قبل العملية الي (1.06 ± 1.53) عند الشهر السادس بعد العملية. وأيضاً التحسن في متوسطات الحد الأقصى لفتحة الفم من (5.47 ± 26.67) ملليمتر) قبل العملية الي (2.08 ± 43.11) ملليمتر) عند الشهر السادس بعد العملية جلي بوضوح. اضافة الي التحسن الجلي في متوسطات الانحراف الجانبي للناحية اليمنى حيث كانت (0.87 ± 7.00) ملليمتر) قبل العملية وبعد ذلك أصبحت (0.56 ± 8.07) ملليمتر) عند الشهر السادس بعد العملية. وأيضاً متوسطات الانحراف الجانبي الأيسر أبانت نفس التحسن من (0.90 ± 6.53) ملليمتر) قبل العملية الي (0.56 ± 8.30) ملليمتر) عند الشهر السادس بعد العملية. الفروق الاحصائية الجوهرية بين متوسطات المقاييس الاكلينيكية قبل وبعد العملية قد لوحظت جلية في هذه الدراسة.

الخلاصة: البزل المفصلي وجبيرة التموضع الأمامي المعدلة من الممكن اعتبارها طريقة فعالة في تقليل العلامات والأعراض الإكلينيكية للانزلاق الغضروفي الغير مرجح لمفصل الفك الصدغي.

الكلمات المفتاحية: اضطرابات المفصل الفكي الصدغي. الانزلاق الغضروفي الغير مرجح. جبيرة التموضع الأمامي المعدلة. بزل مفصل الفك. مفصل الفك